

SONY®

U-matic SP
Type IX

U-matic Videocassette Recorder
VO-9800
(EIA/NTSC)



SP U-matic—A Format for Program Origination

Sony's *U-matic*, a worldwide standard format in the professional video field, has made another big step forward. A new *U-matic* recorder/player, the VO-9800, which functions as a player VTR in editing systems, is the result of Sony's intensive research and accumulated expertise.

The VO-9800, from the Type 9 series of Sony's *U-matic* family, provides an excellent quality picture in every parameter used to determine total picture quality thanks to the adoption of the SP format. It also ensures high quality dubbing for multi-generation recordings. Sound quality is greatly improved by the adoption of the Dolby* C-Type NR circuit. As always seen in Sony's new product development, the VO-9800 maintains format compatibility and system consistency with current *U-matics*. In other words, it can just be added to current Sony editing systems with no modification. The optional BKU-704 Time Code Reader Board and a built-in 9-pin *REMOTE* interface (RS-422 serial) enable highly accurate and flexible editing operations.

With its outstanding cost performance, the VO-9800 will be an important part of many editing systems.



OUTSTANDING FEATURES

Video System

Superior Picture Quality

The VO-9800 is the new generation U-matic from Sony. The SP U-matic technology, in which the FM carrier frequencies for luminance signal modulation are shifted up 1.2MHz from the conventional U-matic video format, was developed to achieve an overall quality improvement. The VO-9800 offers not only 330 TV lines of horizontal resolution but also greatly reduces luminance and chrominance ringing while maintaining a high signal to noise ratio. As a result, the VO-9800 provides an improved multi-generation recording capability. The VO-9800 can transmit luminance and chrominance signals separately through a DUB connector for minimum picture degradation caused by dubbing.



Complete Interchangeability between SP and Conventional U-matic

The SP U-matic format is interchangeable with the conventional U-matic format. Therefore, conventional U-matics can playback high quality SP recorded pictures, and SP U-matics can improve the picture quality of conventional recordings.



SP Mode Automatic Detection System

SP Videocassettes (KSP series) achieve the highest possible U-matic picture quality when used with SP U-matics in the SP mode. KSP series videocassettes have two detection holes. When SP U-matics detect these holes in the recording mode, they automatically switch to the SP recording mode. In the playback mode, SP U-matics detect which FM carrier frequencies are used for luminance signal modulation. Once the SP video format is detected, SP U-matics automatically switch to the SP playback mode.



Audio System

Superior Audio Quality

The VO-9800 adopts new sendust heads and new audio circuits for superior audio quality. The frequency response is improved to 50Hz ~ 15kHz \pm 3dB, and S/N ratio is improved to 52dB.

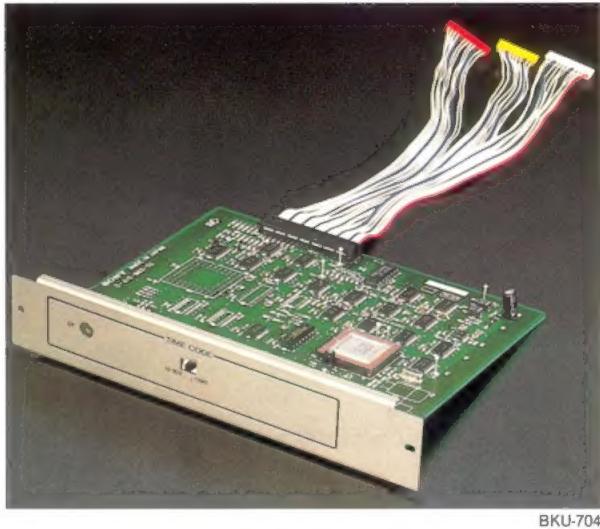


Dolby C-Type Noise Reduction System

Dolby C-Type Noise Reduction System improves the S/N ratio to 72dB (measured by the CCIR/ARM filter, r.m.s.) and works only in SP recording/playback modes. Dolby NR can be selected by the Dolby NR ON/OFF switch in the SP recording mode. When in the Dolby NR ON mode, the Dolby NR pilot signal is recorded on to the audio channels along with the audio signals. In the playback mode, the VO-9800 automatically activates the Dolby NR system when the Dolby NR pilot signal is detected.

XLR Connectors

The VO-9800 provides audio XLR connectors to work with professional audio equipment and for stable transmission of audio signals.



BKU-704

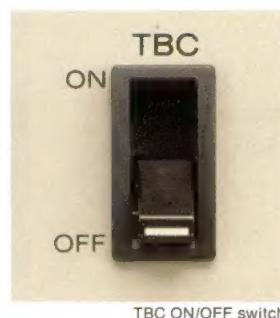
Time Code Capability with BKU-704 Time Code Reader (optional)

An optional time code reader board, the BKU-704, can be installed into the VO-9800. This allows it to read time codes.

Main Features of BKU-704

- Can read SMPTE time code
- Easy installation
- Time code or user bits can be superimposed on the video signal (monitor output) via the Dial Menu Operation.

Versatile System Interface



BKU-703 33-pin Editing Interface (optional)

The BKU-703 33-pin parallel interface board can be installed into the VO-9800 for connection with the RM-440 Editing Control Unit and current 33-pin remote control units such as the RM-500, RM-580, and RM-555.

TBC Connection

The VO-9800 provides EXT SYNC IN, SC IN, and RF OUT (OFF TAPE) for connection with an external time base corrector such as the BVT-810. When a TBC is used, the TBC ON/OFF switch on the VO-9800 has to be set to the TBC ON mode. The connection with TBC offers highly stable signal output in VO-9800.

Editing Facility

Player for Editing

The VO-9800 can be used as the player in an editing system that includes the VO-9850 and RM-450. When the BKU-704 Plug-in Time Code Reader is installed into the VO-9800, the VO-9800 can be used for time code editing. When the optional BKU-703 33-pin Editing Interface board is installed into the VO-9800, the VO-9800 can be used with the RM-440 Editing Control Unit for editing as player.

Back-space Editing Capability

The VO-9800 provides a back-space editing capability for smooth transitions between scenes.

Audio Dubbing on CH-1

Additional audio for narration and background music is easy to record via the audio dubbing function. Additional audio is recorded on audio channel 1 on the already recorded tape.

High Speed Picture Search

SHUTTLE MODE

The search dial on the VO-9800 can offer various speeds, still, $\frac{1}{30}$, $\frac{1}{10}$, $\frac{1}{5}$, $\frac{1}{2}$, 1, 2, 5, or 8 times normal speed in both the forward and reverse directions. In the still mode, noiseless still pictures, on which the guard band noise is located on the upper or bottom part of the monitor screen, is available. (On/off selectable via Dial Menu Operation.)

JOG MODE

In the JOG mode, accurate frame by frame search in both directions, as directed by the rotation of the search dial, is possible.



Dial Menu Operation

The Dial Menu Operation provides maximum operational conveniences, such as:

- display of time codes/user bits
- selection of character size and position
- display of self-diagnostic results
- display of digital hour meter information
- setting of STILL TIMER (i.e. the length of time in still mode before releasing tape tension)
- setting preroll time
- selection of search dial operational modes (Direct or via Search Button)

and much more. The operation can be done while viewing the monitor or LED time counter.



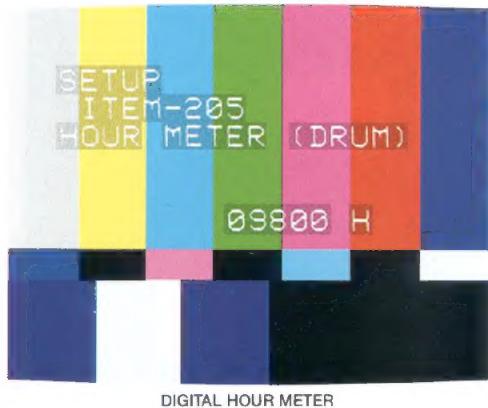
Search Dial

Improved Reliability and Serviceability

STILL TIMER (Anti-clog Facility)

The STILL TIMER is provided to prevent tape and head damage occurring during long term STILL. When the STILL mode has been on for more than 8 minutes, the VO-9800 automatically moves into the STANDBY OFF mode. The STILL TIMER can be set to sixteen different steps from 0.5 seconds to 8 minutes via the Dial Menu Operation.





Digital Hour Meters

Digital Hour Meter 1: the accumulated time that the tape has been threaded around the video head drum

Digital Hour Meter 2: the accumulated time that the power of the VO-9800 has been on

Both meters can count up to 15,000 hours. The time is simply obtained via the SEARCH DIAL and displayed on the monitor and LED time counter.

Self Diagnostics

Service time for the VO-9800 is kept to a minimum via the self-diagnostic function. The self-diagnostic function is provided in the Dial Menu Operation and can be displayed on the monitor and LED time counter.

User Friendly Installation

5 Units High

The VO-9800 is 5 units high and maintains this compactness even when the time code board is installed.

19 inch EIA Rack Mountable

When the VO-9800 is installed into a 19 inch EIA standard rack or the SONY SU rack, the RMM-501 Rack Mount Kit, which is the same as that for the VO-5850/5800 series U-matics, can be used.

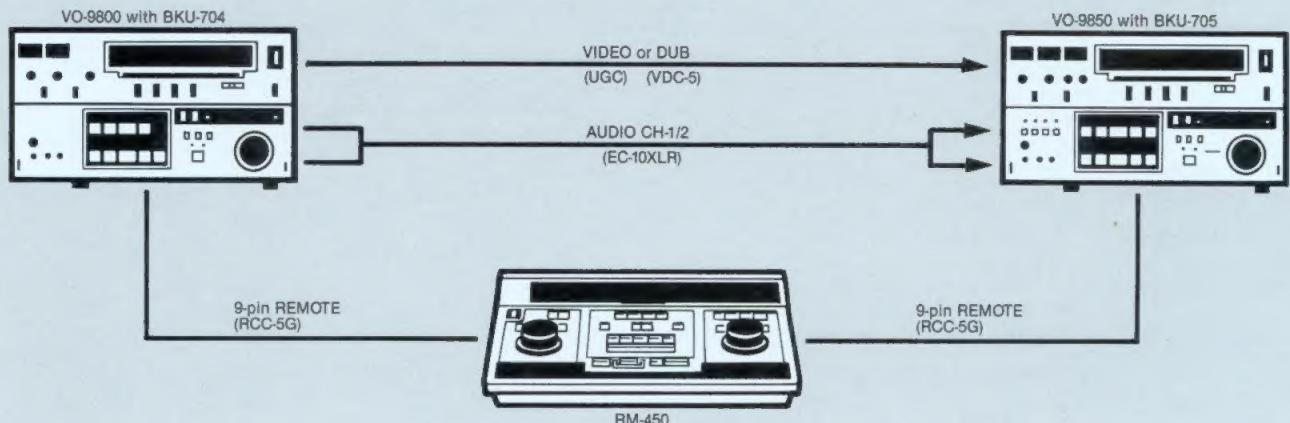
Hinged Front Panel

The VO-9800's front panel can be slanted at a 0°, 30°, 60°, or 90° angle for operational convenience.

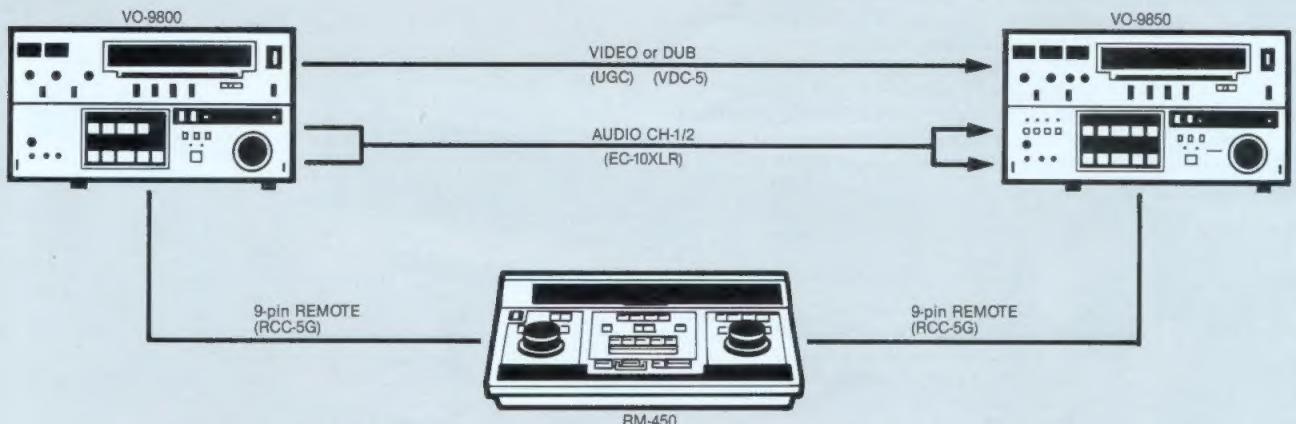


BASIC SYSTEM CONNECTIONS

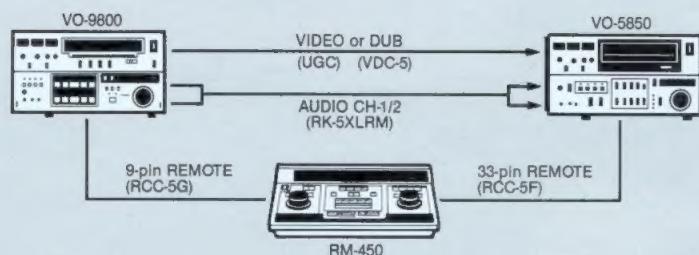
Example (1) Time code based editing system



Example (2) CTL based editing system



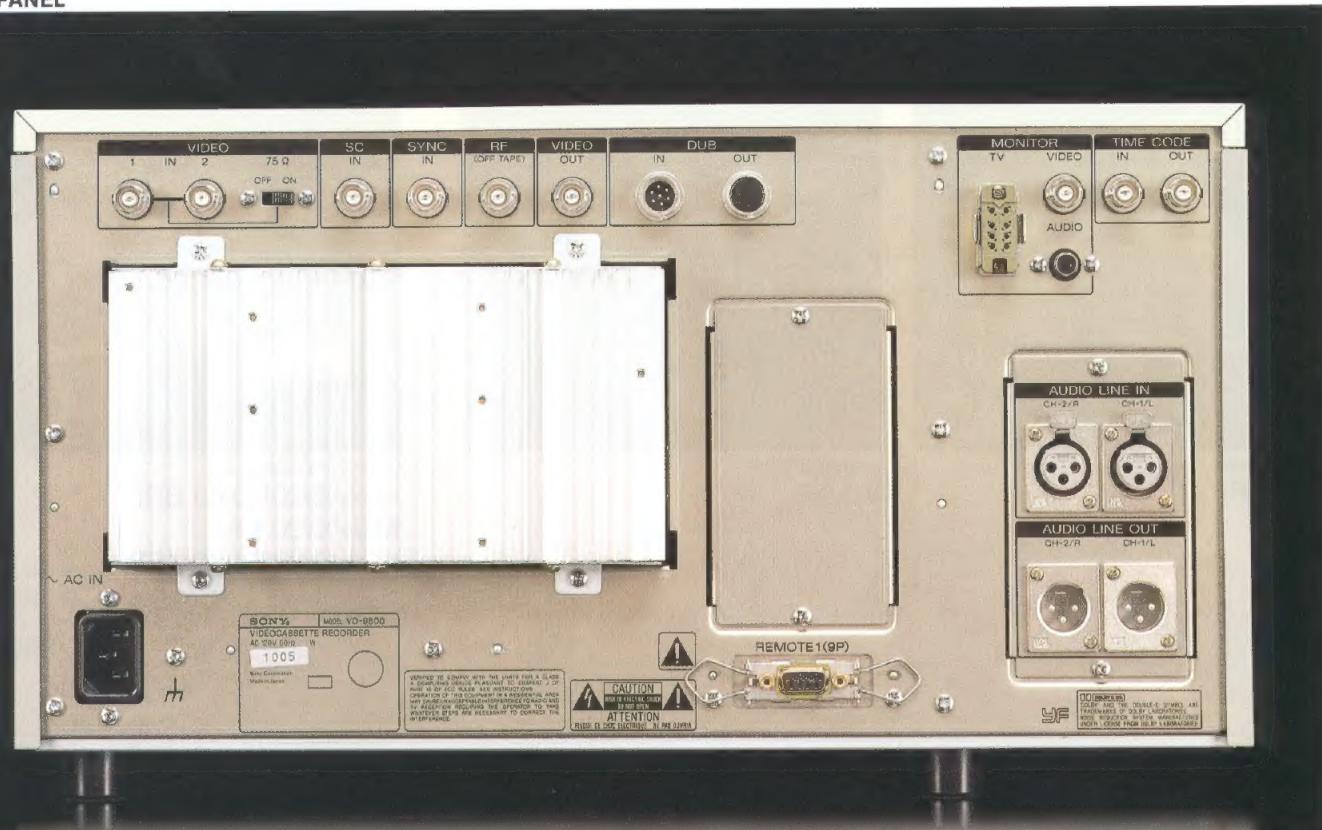
Example (3) Editing system with the VO-5850



FRONT PANEL



REAR PANEL



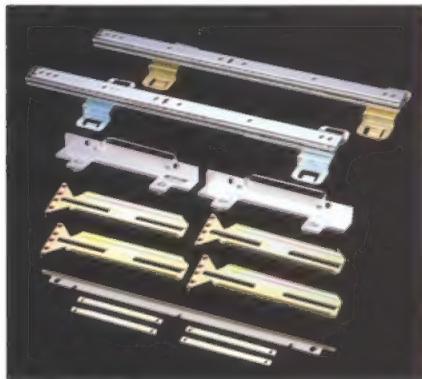
OPTIONAL ACCESSORIES



33-pin Editing Interface
BKU-703



Time Code Reader
BKU-704



Rack Mount Kit
RMM-501



9-pin Remote Cable
RCC-5G/10G/30G



33-pin Remote Cable
RCC-5F



Dubbing Cable
VDC-5

PERIPHERAL EQUIPMENT



Editing Remote Control Unit
RM-450



SP U-matic Videocassette
KSP-10/20/30/60, KSP-S10/S20



U-matic Videocassette
**KCA-10/20/30/60 BRS,
KCS-10/20 BRS,
KCA-10/20/30/60 XBR**

SPECIFICATIONS

VO-9800

GENERAL

Weight:	21.4 kg (47 lb 2 oz)
Dimensions:	426(W) x 238(H) x 513(D)mm (16 ⁷ / ₈ x 9 ³ / ₈ x 20 ¹ / ₄ ")
Power requirements:	AC 120V, 50/60Hz
Operating voltage:	AC 90 ~ 132V
Power consumption:	85W (with BKU-703, BKU-704, and RM-440)
Operating temperature:	5°C ~ 40°C (41°F ~ 104°F)
Videocassette:	SONY KSP, KSP-S, KCA-BRS, KCS-BRS, KCA-XBR, KCS-XBR series or equivalent
Recording and playback time:	60 min.
Fast forward time:	Less than 4 min. (with SONY KSP-60 U-matic videocassette)
Rewind time:	Less than 4 min. (with SONY KSP-60 U-matic videocassette)
Search speed:	SHUTTLE mode: STILL, 1/30, 1/10, 1/5, 1/2, 1, 2, 5, 8 times normal speed in the forward and reverse directions JOG mode: STILL to normal speed in the forward and reverse directions

VIDEO

Video recording system:	Rotary 2-head helical scan system
Luminance:	FM recording
Chrominance:	SC low-range conversion recording
Input:	NTSC composite video, 1.0Vp-p ± 0.3V, sync negative, 75 ohms, unbalanced
Output:	NTSC composite video, 1.0Vp-p ± 0.2V, sync negative, 75 ohms, unbalanced
Dubbing input:	7-pin × 1
Dubbing output:	7-pin × 1
Horizontal resolution:	SP mode: 330 lines (color/monochrome) Conventional mode: 250 lines (color/monochrome)
S/N ratio:	SP mode: Better than 46dB (color) Better than 48dB (monochrome) Conventional mode: Better than 46dB (color)
EXT SYNC IN:	2.5V (1.0 ~ 5.0V)p-p, negative, 75 ohms, unbalanced
SC IN:	1.0V (0.5 ~ 3.0V)p-p, 75 ohms, unbalanced
RF OUT (OFF TAPE):	0.5V (0.3 ~ 1.0V)p-p, 75 ohms, unbalanced

TIME CODE

Input:	0dB ± 6dB, 10k ohms, unbalanced (0dB = 1.55Vp-p pulse)
Output:	0dB ± 3dB, low impedance, unbalanced (0dB = 1.55Vp-p pulse)

AUDIO

Input:	Line: +4dB, 10k ohms, balanced Microphone: -60dB, 3k ohms, unbalanced
Output:	Line: +4dBm (at 600 ohms), balanced Headphone: -26dB ~ -46dB (at 8 ohms), unbalanced Monitor: -5dB (at 47k ohms), unbalanced
Distortion:	Less than 2%
Frequency response:	50Hz ~ 15kHz
Wow and Flutter:	Less than 0.18% rms
S/N ratio:	SP mode: Better than 52dB (3% distortion without Dolby NR) Conventional mode: Better than 50dB (3% distortion)

SUPPLIED ACCESSORIES

Operation manual (1)
AC cord (1)

BKU-703

Connectable to:	VO-9800/9850
Weight:	230 g (8.1 oz)
Dimensions:	63(W) x 109(H) x 64(D)mm (2 ¹ / ₂ x 4 ³ / ₈ x 2 ⁵ / ₈ ")
Connector:	33-pin

SUPPLIED ACCESSORY

Installation manual (1)

BKU-704

Connectable to:	VO-9800/9850
Weight:	190 g (6.3 oz)
Dimensions:	199(W) x 41(H) x 145(D)mm (7 ⁷ / ₈ x 1 ⁵ / ₈ x 5 ³ / ₄ ")
Time code:	SMPTE

SUPPLIED ACCESSORY

Installation manual (1)

Design and specifications subject to change without notice.

*Dolby and  are trademarks of Dolby Laboratories Licensing Corporation.

Distributed by